Avlite®
www.avlite.com

AV-15

with User-Adjustable Flash Settings
Solar Aviation Light
Installation & Service Manual

Version 3.1

Avlite
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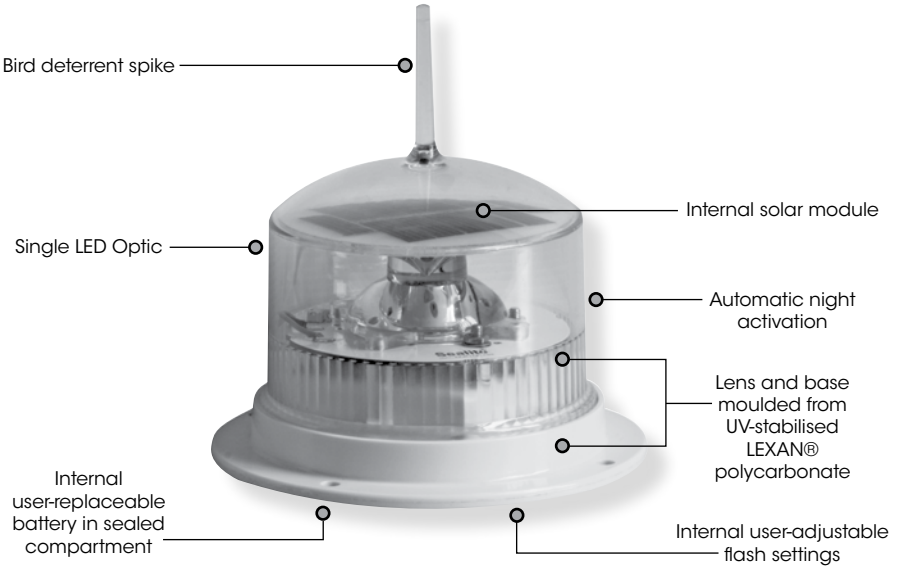
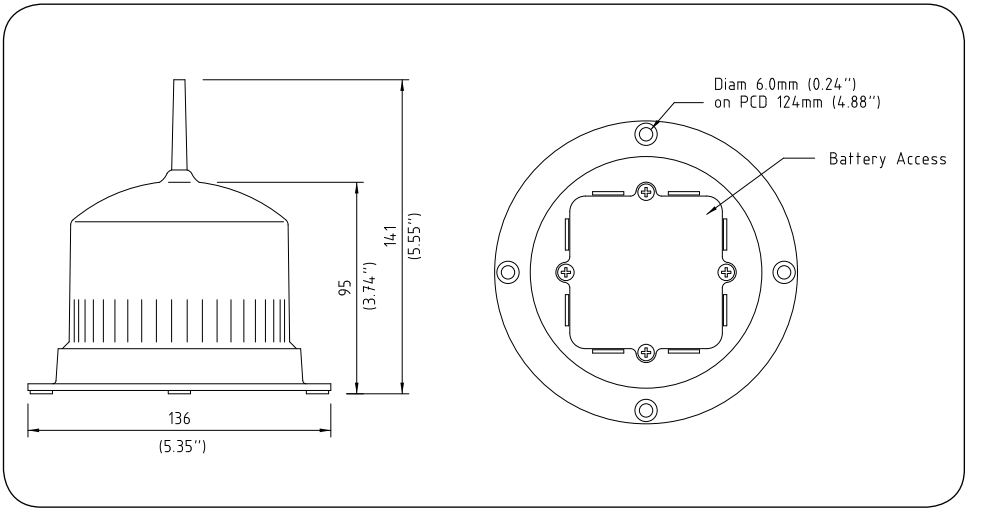
with User-Adjustable Flash Settings
Solar Aviation Light


Bird deterrent spike
Internal solar module
Single LED Optic
Automatic night activation
Lens and base moulded from UV-stabilised LEXAN® polycarbonate
Internal user-replaceable battery in sealed compartment
Internal user-adjustable flash settings



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Version No.	Description	Date	Approved
1.2	Update Manual	May 2010	K. Paton
2.0	Update: New Design	May 2012	J. Dore
2.1	Update: Replacing the Battery	June 2012	J. Dore
3.0	Update:Product Code	October 2012	J. Dore
3.1	Update: Spec table	January 2013	J. Dore

Introduction

Congratulations! By choosing to purchase an Avlite light, you have become the owner of one of the most advanced solar LED airfield lights in the world.

Avlite Systems draws on more than 25 years experience in the design and manufacture of navigation aids, and particular care has been taken to ensure your light gives years of trouble free service.

As a commitment to producing the highest quality products for our customers, Avlite has been independently certified as complying with the requirements of ISO 9001:2008 quality management system.

By taking a few moments to browse through this booklet, you will become familiar with the versatility of your light, and be able to maximise its operating function.

Please remember to complete the Avlite warranty registration card accompanying your light.

Operating Principle

The solar module of the light converts sunlight to an electrical current that is used to charge the battery. The battery provides power to operate the light at night.

The flasher unit has very low current requirements. A microprocessor drives an ultra bright LED through a DC/DC converter, which enables the LED's to operate within the manufacturer's specifications. The battery is protected from over-charging within the circuit to ensure maximum battery life.

On darkness, the microprocessor will initiate a program check and after approximately 1 minute will turn on.

Technology

Avlite Systems is a world-class solar lighting systems manufacturer with a proven reputation for rapid, innovative, and agile technology solutions designed specifically for defense, government, civil and humanitarian aid operations in the most remote, toughest environments.

Electronics

Avlite employs leading in-house electronic engineers in the design and development of software and related circuitry. All individual electronic components are sourced directly by Avlite procurement staff ensuring that only the highest quality components are used in our products.

LED Technology

All aviation lights use the latest advancements in LED (Light Emitting Diode) technology as a light source. The major advantage of LED's over traditional light sources is well established in that they typically have an operational life in excess of 100,000 hours, resulting in substantial savings to maintenance and servicing costs.

Precision Construction

Commitment to investing in the design and construction of injection-moulded parts including optic lenses, light bases and a range of other components ensures that all Avlite products are of a consistent and superior quality.

Optical Performance

Avlite manufactures a range of aviation LED lenses moulded from multi-cavity dies. Complex shapes such as the AV70 and 16-segment multi-focus lenses are a testament to the company's superior in-house lens manufacturing capabilities and outstanding optical performance.

Award-winning, Patented Technology

Several United States and Australian patent registrations are held on Avlite's range of innovative designs, with other regional patents pending in Canada, United Kingdom and Europe.

AV-15 Model

The Avlite Systems AV-15 LED compact light that incorporates some of the most advanced technology available. Designed to be maintenance-free and have a service life of over 5 years, the AV-15 is supplied ready for installation, and requires no operator intervention.

An optional external ON/OFF switch can be installed on request.

SPECIFICATIONS • *	AV-15
Light Characteristics	
Light Source	1 LED
Available colors	Red, Green, White, Yellow, Amber, Blue
Peak Intensity (cd)†	Flashing: Blue - 3.0 Red - 6.2 Green - 7.6 White - 6.8 Yellow - 5.9
Vertical Divergence (degrees)	7
Reflector Type	Single LED Optic
Available Flash Characteristics	16 user-adjustable flash rates, including steady-on (other flash rates available on request)
Intensity Adjustments	32 automatic step-down settings based on power demand of flash code selection, from 100% at 10% duty cycle through 25% at fixed on
LED Life Expectancy (hours)	>100,000
Electrical Characteristics	
Operating Voltage (V)	3.6
Temperature Range	-40 to 80°C
Solar Characteristics	
Solar Module Type	Multicrystalline
Output (watts)	0.45
Solar Module Efficiency (%)	14
Charging Regulation	Microprocessor controlled
Power Supply	
Battery Type	High grade NiMH – Environmentally friendly
Battery Capacity (Ah)	1.6
Nominal Voltage (V)	3.6
Autonomy (nights)	Steady-on: >14 (14 hour darkness) Flashing: >35 (14 hour darkness, 12.5% duty cycle)
Physical Characteristics	
Body Material	LEXAN® Polycarbonate – UV stabilized
Lens Material	LEXAN® Polycarbonate – UV stabilized
Lens Diameter (mm/inches)	98 / $3\frac{7}{8}$
Lens Design	Single LED Optic
Mounting	4 x 6mm mounting holes
Height (mm/inches)	141 / 5½
Width (mm/inches)	136 / $5\frac{3}{8}$
Mass (kg/lbs)	0.5 / $1\frac{1}{8}$
Product Life Expectancy	Up to 12 years
Certifications	
CE	EN61000-6-3:1997.EN61000-6-1:1997
Quality Assurance	ISO9001:2008
Waterproof	IP68
Intellectual Property	
Patents	US Pat. No. 6,667,582. AU Pat. No. 778,918
Trademarks	AVLITE® is a registered trademark of Avlite Systems
Warranty *	3 year warranty
Options Available	• External ON/OFF switch • IR LED

CE

• Specifications subject to change or variation without notice
* Subject to standard terms and conditions
† Intensity setting subject to solar availability

Installation

Charging the Battery

New lights should be left in the sun for 1-2 days to ensure battery is charged before placing in service. Please note, light will re-charge even when switch is turned to 'OFF' position.

Preferred Installation Location

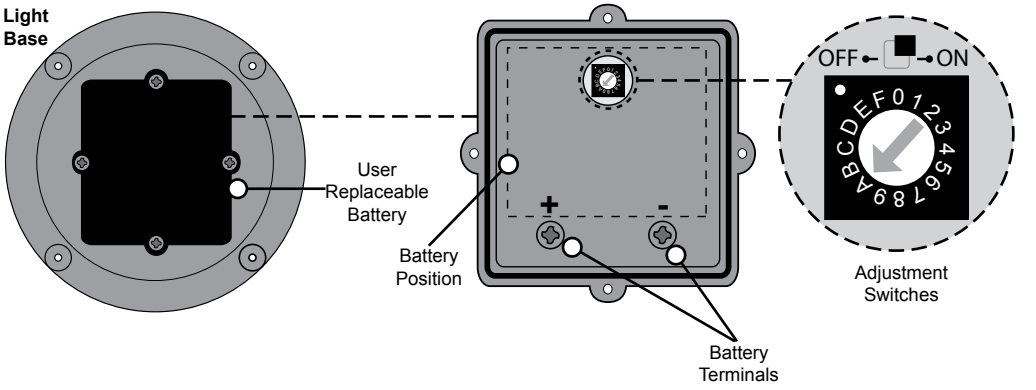
For best light performance, ensure solar modules are not covered and are in clear view of the sky with no shadows.

1. The AV-15 will be supplied preset to the requested flash code.
2. The light can be directly positioned in your desired location. Secure it, utilising the 4 x holes in the flange. Ensure the light is bolted to an even, flat surface.

Flash Codes

Adjusting the Flash Code

1. Remove the 4 x battery cover screws and lift the cover and battery out of the compartment to expose the adjustment plug.
2. Unscrew the adjustment plug.
3. Using a small flat bladed screwdriver adjust the Flash Code to the desired setting.
4. Cover the light, in darkness, for at least 30 seconds to activate the light sensor. Make sure the light is flashing correctly.
5. Uncover the light and wait at least 30 seconds to make sure the light turns off in daylight.
6. Insert the adjustment plug and replace the battery.
7. Replace the cover and secure using the 4 x screws. Do Not over tighten screws.
8. Position the light in your desired location and secure, utilising the 4 x holes in the flange. Ensure the light is bolted to an even, flat surface.



Selecting an Intensity/Power Setting

Using the latest technology in software, the AV-15 automatically adjusts the Intensity Setting when Flash Code is set.

Selecting a Flash Code- Rotary Switch

All AV-15 Lights are fitted with a rotary switch. Turning the small arrow to the appropriate number or letter will set the code (see '*Flash Codes*' section of this manual). The unit may take up to one minute to activate a new flash code. A comprehensive list of available flash codes is listed In the '*Flash Code Table'* section of this manual.

Rotary Switch

Flash Code Table

SWITCH POSITION	FLASH SETTING		DUTY CYCLE
	ON (sec)	OFF (sec)	
0	Steady On		100%
1	0.5	1.0	33%
2	0.5	3.5	12.5%
3	1.0	3.0	25%
4	0.5	5.5	8.5%
5	0.3	0.7	30%
6	0.3 (On), 0.7 (Off), 0.3, 0.7, 0.3, 0.7, 0.3, 15.7		6.5%
7	0.3	1.7	15%
8	0.3	2.2	12%
9	0.5	2.0	20%
A	0.3	2.7	10%
B	0.5	2.5	16.5%
C	0.7	2.3	23.5%
D	0.5	4.5	10%
E	1.0	4.0	20%
F	Custom Flash Code Position		

Note: If a Specific Flash Code has to be pre-set at the factory it will be found at Switch Position F

Maintenance and Servicing

Designed to be maintenance free, the AV-15 requires minimal attention, though the following maintenance and servicing information is provided to help ensure the life of your Avlite product.

1. Cleaning Solar Panels - occasional cleaning of the solar panels may be required. Using a cloth and warm soapy water, wipe off any foreign matter before rinsing the panels with fresh water.
2. Battery Check - inspection of batteries should be performed every two years (minimum) to ensure that the charger, battery and ancillary electronics are functioning correctly. Using a voltage meter, check that the battery voltage is at least 3.6 volts under 50mA load, and ensure all terminals are clear of foreign matter.

Replacing the battery- Don't throw the unit out!!

The AV-15 light is the only compact aviation light with a double sealed battery compartment. This provides the user with the ability to change the battery after years of operation.

1. Remove the 4 x battery cover screws and lift the cover and battery out of the compartment to expose the adjustment plug.
2. Unscrew the adjustment plug.
3. Use a small flat bladed screwdriver to turn unit OFF.
4. Unscrew positive and negative battery leads.
5. Discard old battery in a safe manner. Please remember to recycle where possible.
6. Reattach positive and negative leads to new battery and then place back into case.
7. Switch lantern 'ON' via internal switch.
8. Cover the light, in darkness, for at least 30 seconds to activate the light sensor. Make sure the light is flashing correctly.
9. Uncover the light and wait at least 30 seconds to make sure the light turns off in daylight.
10. Insert the adjustment plug and replace the battery.
11. Replace the cover and secure using the 4 x screws.

Care must be taken to observe the polarity of the battery before the leads are re-connected, and ensure the replacement battery is correctly fitted. Always discard old batteries in a safe manner.

Long Term Storage Instructions (>4 weeks)

If light is required to be stored for longer than 4 weeks, please turn the light off using the internal ON/OFF switch (or external ON/OFF switch where fitted).

1. Remove the 4 x battery cover screws and lift the cover and battery out of the compartment to expose the adjustment plug.
2. Unscrew the adjustment plug.
3. Using a small flat bladed screwdriver switch the ON/OFF switch to the OFF position.
4. Insert the adjustment plug and replace the battery.
5. Replace the cover and secure using the 4 x screws. Do Not over tighten screws.
6. Repeat these steps to re-activate your light when it is removed from storage.

Trouble Shooting

Problem	Remedy
Light will not activate.	• Ensure internal switch (or external switch where fitted) is set to the 'ON position. • Ensure light is in darkness. • Wait at least 45 seconds for the program to initialise in darkness. • Ensure switch setting is on a valid code (See *Flash Codes* section of this manual). • Ensure battery terminals are properly connected. • Ensure battery voltage is above 3.6 volts.
Timing codes will not change.	• Turn rotary switch several times to ensure contacts are clear.
Light will not operate for the entire night.	• Expose light to direct sunlight and monitor operation for several days. Avlite products typically require 1.5 hours of direct sunlight per day to retain full autonomy. From a discharged state, the light may require several days of operational conditions to 'cycle' up to full autonomy. • Ensure solar module is clean and not covered by shading during the day.

AV-15 Optional Configurations

ON/OFF Switch
An optional external ON/OFF switch can be installed on request (additional charges will apply).

Custom Flash Patterns
Other flash patterns are available on request.

Avlite Light Warranty V1.1

Activating the Warranty

Upon purchase, the Avlite Systems warranty must be activated for recognition of future claims. To do this you have two (2) options:

1. **Postal Registration**
   Please complete the Avlite Systems Warranty Registration Card and return to Avlite within 30 days of your purchase.
2. **Online Registration**
   Please complete the Online Registration Form at; **www.avlite.com**

Avlite Systems will repair or replace your lantern in the event of electronic failure for a period of up to three years from the date of purchase.

The unit must be returned to Avlite freight prepaid.

Warranty Terms

1. Avlite Systems warrants that any Avlite aviation products fitted with telemetry equipment including but not limited to AIS, GSM, GPS or RF ("Telemetry Products") will be free from defective materials and workmanship under normal and intended use, subject to the conditions hereinafter set forth, for a period of twelve (12) months from the date of purchase by the original purchaser.
2. Avlite Systems warrants that any rotationally-moulded products ("Roto-Moulded Products") and accessory products ("Accessory Products") will be free from defective materials and workmanship under normal and intended use, subject to the conditions hereinafter set forth, for a period of twelve (12) months from the date of purchase by the original purchaser.
3. Avlite Systems warrants that any Avlite aviation products other than the Telemetry Products, Roto-Moulded Products and Accessory Products ("Avlite Products") will be free from defective materials and workmanship under normal and intended use, subject to the conditions hereinafter set forth, for a period of three (3) years from the date of purchase by the original purchaser.
4. Avlite Systems will repair or replace, at Avlite's sole discretion, any Telemetry Products, Roto-Moulded Products, Accessory Products or Avlite Products found to be defective in material and workmanship in the relevant warranty period so long as the Warranty Conditions (set out below) are satisfied.
5. If any Telemetry Products or Avlite Products are fitted with a rechargeable battery, Avlite Systems warrants the battery will be free from defect for a period of one (1) year when used within original manufacturer's specifications and instructions.

Warranty Conditions

This Warranty is subject to the following conditions and limitations;

1. The warranty is applicable to lanterns manufactured from 1/1/2009.
2. The warranty is void and inapplicable if:
   a. the product has been used or handled other than in accordance with the instructions in the owner's manual and any other information or instructions provided to the customer by Avlite;
   b. the product has been deliberately abused, or misused, damaged by accident or neglect or in being transported; or
   c. the defect is due to the product being repaired or tampered with by anyone other than Avlite or authorised Avlite repair personnel.
3. The customer must give Avlite Systems notice of any defect with the product within 30 days of the customer becoming aware of the defect.
4. Rechargeable batteries have a limited number of charge cycles and may eventually need to be replaced. Typical battery replacement period is 3-4 years. Long term exposure to high temperatures will shorten the battery life. Batteries used or stored in a manner inconsistent with the manufacturer's specifications and instructions shall not be covered by this warranty.

5. No modifications to the original specifications determined by Avlite shall be made without written approval of Avlite Systems.
6. Avlite lights can be fitted with 3rd party power supplies and accessories but are covered by the 3rd party warranty terms and conditions.
7. The product must be packed and returned to Avlite Systems by the customer at his or her sole expense. Avlite Systems will pay return freight of its choice. A returned product must be accompanied by a written description of the defect and a photocopy of the original purchase receipt. This receipt must clearly list model and serial number, the date of purchase, the name and address of the purchaser and authorised dealer and the price paid by the purchaser. On receipt of the product, Avlite Systems will assess the product and advise the customer as to whether the claimed defect is covered by this warranty.
8. Avlite Systems reserves the right to modify the design of any product without obligation to purchasers of previously manufactured products and to change the prices or specifications of any product without notice or obligation to any person.
9. Input voltage shall not exceed those recommended for the product.
10. Warranty does not cover damage caused by the incorrect replacement of battery in solar lantern models.
11. This warranty does not cover any damage or defect caused to any product as a result of water flooding or any other acts of nature.
12. There are no representations or warranties of any kind by Avlite or any other person who is an agent, employee, or other representative or affiliate of Avlite, express or implied, with respect to condition of performance of any product, their merchantability, or fitness for a particular purpose, or with respect to any other matter relating to any products.

Limitation of Liability

To the extent permitted by section 68A of the Trade Practices Act 1974 (Cth), the liability of Avlite Systems under this Warranty will be, at the option of Avlite Systems, limited to either the replacement or repair of any defective product covered by this Warranty. Avlite Systems will not be liable to Buyer for consequential damages resulting from any defect or deficiencies in accepted items.

Limited to Original Purchaser

This Warranty is for the sole benefit of the original purchaser of the covered product and shall not extend to any subsequent purchaser of the product.

Miscellaneous

Apart from the specific warranties provided under this warranty, all other express or implied warranties relating to the above product is hereby excluded to the fullest extent allowable under law. The warranty does not extend to any lost profits, loss of good will or any indirect, incidental or consequential costs or damages or losses incurred by the purchaser as a result of any defect with the covered product.

Warrantor

Avlite Systems has authorised distribution in many countries of the world. In each country, the authorised importing distributor has accepted the responsibility for warranty of products sold by distributor. Warranty service should normally be obtained from the importing distributor from whom you purchased your product. In the event of service required beyond the capability of the importer, Avlite Systems will fulfil the conditions of the warranty. Such product must be returned at the owner's expense to the Avlite Systems factory, together with a photocopy of the bill of sale for that product, a detailed description of the problem, and any information necessary for return shipment.

Information in this manual is subject to change without notice and does not represent a commitment on the part of the vendor.
Sealite products are subject to certain Australian and worldwide patent applications.

Other Avlite Products Available

Solar Aviation Lighting

**Radio Controlled &
PALC Systems (FCC Compliant)**

**Obstruction Lighting
(LIOL A & LIOL B)**

**Airfield Markers
& Accessories**

Typical Applications

- Temporary & permanent airfield lighting
- Remote, emergency & defence airfield lighting
- Barricade, hazard & perimeter lighting
- Obstruction Lighting

For a complete list of product compliances including ICAO & FAA, please contact Avlite today

Area & Sign Lighting

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